Fratricide and a correlation to ABCS Training Levels

A Monograph

by

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14. ABSTRACT

This monograph explores the correlation between incidents of Fratricide and levels of training on the Army Battle Command System (ABCS) individual systems. It begins with an examination of the elements of Battle Command as both an art and a science. This monograph then describes the individual systems that make up the ABCS suite. The development and introduction of these systems is also covered. A careful examination of the training requirements for the ABCS suite is discussed next, as that is central to the argument of the monograph. Following this is a definition of fratricide and the factors surrounding these incidents. This monograph does not delve into a discussion of prevention, but rather identification of the relation of the incidents to the training levels of individual operators and leaders of the systems. Finally, this monograph offers several recommendations to improve the training levels and tracking requirements for training in an effort to reduce the likelihood of incidents of fratricide.

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Introduction

The elements of Battle Command have been and will continue to be a constant area of study for Army leaders at all levels. It is both an art and a science. The elements of Battle Command – understand, visualize, describe, direct, lead & assess – represent the science.[1] There are processes and methods that help a Commander to visualize an operation, for example, the Principles of War or Elements of Operational Design. However, how that Commander applies the elements of Battle Command, that visualization is the art. As the Army continues its transformation and quest for advanced technology, this technology is not limited to weapons systems. A great deal of it has focused on improving leader's situational awareness on a battle field that no longer comprises clear front lines.

The umbrella term, Army Battle Command System (ABCS) includes over a dozen separate systems and technologies designed to enhance and assist in Battle Command as well as improve leader's situational awareness (SA) and situational understanding (SU).[2] There are also several systems either in design or in production outside of the ABCS suite that seek to enhance Battle Command and SA. While these systems are not a part of the ABCS suite, some of them have been developed with the art of Battle Command as one of their cornerstone objectives. More often than not, many of these advanced technologies are created in the quiet, friendly confines of some Silicon Valley laboratory. Transferring these systems to the hands of soldiers on a modern battlefield full of Clausewitzian fog is often a difficult time-consuming process; especially when those advanced technologies are somewhat unfamiliar to the soldier.

The process of getting new equipment into the hands of soldiers is known as the Army Acquisition Process. It can seem long and very convoluted and at times it is just that for very

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[1] US Department of the Army, Field Manual 3-0, *Operations: Full Spectrum Operations (Draft)* (Washington DC: Department of the Army, 2007), 5-2.

[2] TRADOC Program Integration Office (TPIO) – ABCS, *ABCS: Army Battle Command System, Leader's Reference Guide, version 6.4* (Fort Leavenworth, KS: Combined Arms Center, 2007), 2-1.

good reasons. However, the process can also help the Army understand the full capabilities of a particular system, especially the aspects of testing, fielding and training the new system, which is where this monograph will focus its discussions regarding Army Acquisition. As with anything new, learning how to properly employ it is critical. This idea is even further exacerbated by the harsh conditions under which soldiers and leaders are conducting missions.

Repeated, effective training can be one of the best ways for soldiers and leaders to learn how to adequately employ these new technologies to enhance Battle Command and help prevent the incidents of fratricide and near-fratricide. Adequate training is necessary because these incidents of fratricide and/or near-fratricide can be debilitating physically, mentally, and emotionally to units regardless of their size.[3] Consequently, preventing fratricide, something that all soldiers must be and generally are concerned with, is a critical component of both Army planning and training. Training must include the Battle Command components of the ABCS suite because ABCS provides soldiers and leaders with the basic elements of Battle Command and answers:

- Where am I?
- Where are other friendly elements?
- Where are the enemy elements?
- What is the status and activity of each element?[4]

This monograph describes the elements of Battle Command, how they correspond to the individual systems within the ABCS suite and will highlight the correlation between training levels on these systems and incidents of fratricide. The inadequate training of soldiers and leaders on the individual systems within the ABCS suite directly corresponds to incidents of fratricide; increased training will result in a decrease in incidents of fratricide.

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[3] William Ayers, LTCR, *Fratricide: Can It Be Stopped?* (Annapolis, MD: Naval War College, 1993), pg. 5.

[4] Huba Wass de Czege, BG(Ret) and Jacob Biever, MAJ, "Optimizing Future Battle Command Technologies." *Military Review* volume 78 (March/April 1998): 16.

Battle Command and its Elements

Few things in the Army lexicon are discussed as much as Battle Command. It is often at the center of conversations yet is somewhat misunderstood. Generally, most professional officers and non-commissioned officers (NCOs) can describe what doctrine has defined as Battle Command. Yet when asked what the definition means, many of them struggle to clearly explain the doctrine. This could be because the doctrinal definition of Battle Command is obtuse and is open to interpretation. While the specifics regarding the education and instruction of Battle Command are beyond the scope of this paper, it is important to discuss the elements themselves in order to gain an understanding of the perceived gap that the Army's technological quest seeks to fill.

According to current Army doctrine, Field Manual 3-0 "Operations", Battle Command is "the art and science of understanding, visualizing, describing, directing, leading, and assessing forces in operations against a hostile, thinking, and adaptive enemy."[5] This involves a commander or leader taking his knowledge of the situation, relying on his own personal experience and training, assessments that he and his staff make, and transmitting that vision to his subordinates. To fully understand how a commander or leader accomplishes Battle Command, it is necessary to understand each of the elements: understand, visualize, describe, direct, lead, and assess.

These elements comprise the science of Battle Command while the application of them is the art. As will be demonstrated each of the elements can be described and characterized; listing tools that are available to the commander to help him gain appreciation of the aspects to consider in turn helping him gain understanding; or the science. The difficult part to describe, train or teach is the application of the items on that list; the art. For example, there is a fine line between the commander making use of continuously updated information and making last minute adjustments to the plan that become disruptive to his subordinates. Commander's intuition,

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[5] Department of the Army, *FM 3-0, Operations*, 5-2.

another hard to define or train aspect, as he makes decisions, while balancing aggressiveness and caution is this art.

In order for a commander to make good decisions he must have a great deal of understanding of the situation he faces. A commander applies the problem framing against the conditions to obtain objectives that will lead to the desired endstate.[6] The use of his knowledge and the assets available to him and his staff help shape this understanding. This then becomes a key to the visualization of the situation. Referencing FM 3-0 again is helpful to describe the element of visualization; "the mental process of developing situational understanding, determining a desired endstate, and envisioning the broad sequence of events by which the force will achieve that endstate."[7] Just like the other elements, the commander draws on a number of sources to visualize the situation; everything from input from his staff, peer commanders, and subordinates to his own experience. As the head football coach might envision the flow of a particular game during his development of the game plan, the commander sees his unit, himself, and his adversary to enable him to describe the broad concepts in order to execute the solution to the current problem set.

The most common mechanism for describing visualization is the commander's intent. More than a rote statement defining key tasks, purpose and endstate, the commander's intent is a tool to communicate the first part of the art of Battle Command.[8] It provides focus for the planners and staff as they continue to update their estimates and prepare for execution. The intent also enables subordinate leader's flexibility to apply their own intuition as they execute as directed. There are other tools available to the commander to help him describe the situation.

Commander's Critical Information Requirements (CCIRs) are statements or questions that help focus friendly activities and/or gain intelligence that are derived by analytically dissecting

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[6] Ibid., 5-3.

[7] Department of the Army, *FM 3-0, Operations,* 5-4.

[8] Ibid., 5-7.

the situation. The intuition comes in the wording of the statements or questions themselves and the application of the information gained from these statements or questions. All of which facilitates the commander's ability to direct his subordinate's actions.

Direction takes several forms and can be as simple as a specific task and purpose, destroy the enemy to provide security for the populace, or be much more unspecific, win the hearts and minds. A commander uses plans and orders to direct these actions but must balance between being too directive, and stifling the creativity of his subordinate commanders or too nebulous that subordinates are incapable of coordinated supporting actions. Once direction has been executed a commander must utilize another aspect of Battle Command to ensure his decisions are correct or actions adjusted during execution; he must lead.

Leadership encompasses all of the elements of Battle Command and is apparent at each and every step of the decision making process and at each level of command. Much has been written about effective leadership, how it is evaluated, how to train it and how it should be taught. The bottom line is this; "leadership is actions which focus resources to create desirable opportunities."[9] Leading and leadership can be taught and trained; that's the science. The art however, is the impact of leadership. For example, a commander's physical location on the battle field depends on his intuition, experience, and need for additional information. At times he must be on the front lines, as COL David Perkins was during 2nd Brigade, 3rd Infantry Division's second Thunder Run into Baghdad.[10] Other times the commander must be further away from the action as LTC Jeffrey Sanderson was as the Panthers of 2nd Battalion, 69th Armor blocked the south and western sides of An Nasiriyah and Tallil Air Base.[11] Both of these are examples of

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[9] David Campbell,. "The Leadership Characteristics of Leadership Researchers," in *The Impact of Leadership,* ed. Kenneth Clark, Miriam Clark and David Campbell (Greensboro, NC: Center for Creative Leadership, 1992), 19.

[10] Jim Lacey, *Takedown: The 3rd Infantry Division's Twenty-one Day Assault on Baghdad.* (Annapolis, MD: Naval Institute Press, 2007), 28.

[11] Ibid., 230.

excellent leadership and both were highly effective. A commander knowing where to place himself is the art of leadership and subsequently part of the art of Battle Command.

The impact of leadership cannot be discounted; it is fundamental to all Army operations from the mundane to the complex. Yet the "continuous monitoring and evaluation of the current situation and progress of an operation," or assessment is the glue that holds the entire Battle Command process together.[12] Each of the other five elements of Battle Command must be assessed, and successful commanders and units make use of assessment at each stage in order to strengthen their decisions and actions. Just like the other aspects, assessment has several tools or mechanisms that provide knowledge and information to the commander, yet the exploitation of that knowledge and information at a critical point and time is an artful display of a commander's visualization, understanding, description, direction, and leadership.

An understanding of the elements of Battle Command presented in the previous paragraphs dictates that some historical perspective be applied to the term Battle Command and the phrase the art of Battle Command. The term itself was developed from an initiative begun in 1993 by then Training and Doctrine (TRADOC) Commander General Frederick M. Franks, Jr. He felt that the technological superiority that the US Army enjoyed during Operation Desert Storm was causing a "warfighting deficiency…an absence of battle command skills and competencies in combined arms commanders."[13] Tasking a team of Observer/Controllers (O/C) from the National Training Center (NTC) to develop a program to train and teach the skills necessary to become a successful battle commander, it was first necessary for the team to identify what these skills were.

The team drew upon the writings and thoughts of great military historians and theorists like J.F.C. Fuller and Carl von Clausewitz. Clausewitz described a military genius as one who

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[12] Department of the Army, *FM 3-0, Operations*, 5-15.

[13] John D. Rosenberg, LTC, "Coaching the Art of Battle Command". *Military Review* volume 76 (1996) 24.

encompassed the qualities of courage, the power of intellect and determination.[14] He wrote that a military genius uses the information provided to him combined with his knowledge and experience to deal with events that were unexpected and make timely, accurate decisions to achieve success. Fuller then expanded these ideas and coined the term "Great Captain" as a commander who uses his "mental processes of creativity and originality based on experience and reason."[15] The works of these two men, and others enabled the O/C team to take the doctrinal definition of Battle Command and define a set of necessary skills. Mastering these skills would make it possible for a leader to master the art of Battle Command. Simply put, these skills are the ability to see the environment, see your enemy and see yourself. Skillfully using the tools of the elements of Battle Command in order to gain the requisite knowledge will provide the successful commander with the intellectual capacity to react to a constantly changing environment. This is the essence of the art of Battle Command; a process that grows and develops over time through experience, practice and instruction.

The quest then becomes two fold, first to gain the knowledge associated with the elements of Battle Command and then to apply that in training and operations. Gaining the knowledge can be accomplished through many forums and environments, including the Army's Officer Professional Education System and a variety of self-development techniques. Self-development is paramount to the growth of every leader. While the thoughts and ideas inherent to self-development are beyond the scope of this paper, it is important to note that a great degree of self-discipline and command influence is required for any self-development program to be effective. The applicable part of this knowledge development is the use of the continually improving tools available to the leader. To this end, the Army has spent a great deal of time, effort and money to design a group

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[14] Carl von Clausewitz, *On War*, ed. Michael Howard and Peter Paret (Princeton NJ: Princeton University Press, 1976), 100.

[15] Demetrios J. Nicholson, MAJ, "Seeing the Other Side of the Hill: the Art of Battle Command, Decision Making, Uncertainty, and the Information Superiority Complex". *Military Review.* Volume 85 (2005): 59.

of technologically based systems designed to assist the commander's implementation of the art of Battle Command. These systems are now coalesced into the ABCS.

The Army Battle Command System

In the late 1980's, as the US was winning the Cold War and Reagonomics ruled the land, the Army sought to take advantage of the multitude of technologies being developed. One group of these technologies was initially and loosely coalesced into the Army Tactical Command and Control Systems (ATCCS) and was specifically focused on the rapid exchange of messages around the battle field.[16] The prevailing thought was that if messages didn't have to be relayed via FM radio from one level of command to the next, then decision making would speed up dramatically. The process of decision making would be enhanced because every leader would have access to the same messages at nearly the same time. This digital technology quest was coupled with the Army and DoD's "conscious decision to develop increasingly lethal platforms aided by automation."[17] As the decade of the 1980's concluded and the Berlin Wall collapsed, the opportunity to validate these systems was looming on the horizon.

Operations Desert Shield and Desert Storm pitted a technologically advanced US and coalition military against the world's third largest army, the Iraqi Army under Sadaam Hussein. The 100 hour war to push the Iraqi Army out of Kuwait seemed to prove that the direction the Army was moving with its digital systems was the correct one. Consequently, each of the then Battlefield Operating Systems (BOS), now referred to as the War Fighting Functions (WFF), began to rapidly develop their own digital systems, or in some cases further the developmental path of an existing system. The result was that the maneuver community built a system, the field artillery community built a system and the intelligence community built a system, and so on until some twelve different systems were being developed, tested, certified and fielded. At this point

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[16] James L. Barton, LTC, "The Army Battle Command System: Fixing the Stovepipe" (Fort Leavenworth, KS: Webster University, 2005), 17.

[17] TPIO-ABCS. "Leader's Reference Guide." 1-2.

none of the systems could communicate with each other; as was discovered by soldiers during initial testing.[18] They were amazed to find that enemy information gained by the intelligence assets could not be passed digitally to the maneuver assets. This problem existed because many of the individual systems were not developed using common software or operating systems. This created a collection of computer based systems residing on a variety of platforms, using a variety of different operating systems, none of which could directly communicate with each other.[19]

Realizing that a huge mess was being created, the Army around the year 2000, decided that the systems needed to be integrated and renamed the project the Army Battle Command System (ABCS).[20] As with any project of this nature, millions of dollars and man-hours had already been invested in each of the individual systems. This created a great deal of resistance from the developers and the acquisition community to become fully integrated. Each developer, WFF representative and financier was convinced that his hardware and software solution was the best. Despite the best efforts of the Army's senior leaders coupled with the newly initiated transformation efforts, progress towards integration of the ABCS was slow. The events of 9/11 and the impending operations in Afghanistan seemed to provide the spark that the development community needed to fix the lack of interoperability between the individual systems. Unfortunately, little actual progress was realized as bottom-up development continued to pit individual system developers and communities against each other.

At the onset of Operation Iraqi Freedom (OIF), the Army reasserted its desire to put fully functioning Battle Command products into the hands of soldiers and leaders on the battlefield. One of the problems was that these systems were expensive and it takes some time to get new systems through the acquisition process. Consequently with the exception of the 4th Infantry Division, the Army's only fully digitized division; many units were forced to acquire systems

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[18] Barton, "Fixing the Stovepipe," 18.

[19] Ibid., 5.

[20] Ibid., 18.

through other means. Generally, this meant individual units were buying their own Commercial-Off-The-Shelf (COTS) systems to fit their particular needs. Far too often these COTS solutions were built by corporations more than willing to provide a solution outside of the acquisition process, which widened the interoperability gap even further.[21] In fact, many of the 3rd Infantry Division units that led the march to Baghdad not only had different systems but also had different versions of software on the similar systems. While the Army made a concerted and valiant effort to get all of the V Corps elements that would fight OIF on the same baseline, very little of the interoperability gap was bridged.

As OIF transitioned from major combat operations to stability and reconstruction operations, then Army Chief of Staff General Peter Schoomaker issued guidance to fix the lack of interoperability:

> …that the Army shift its funding efforts from developing the Battle Command Architecture from its current orientation of developing the solution from the Bottom-Up (4th Infantry Division and ABCS) to one that is focused on developing the Architecture from the Top-Down. He is expecting us to stop development of the ABCS suite of software at the current Block IV and redirect all available funding to fielding a system down to brigades…He wants to focus on what the Commander's Needs are (Top 7)
>
> Friendly Locations
> Current Enemy Situation
> Running Estimate
> Graphic Control Measures
> Fragmentary Orders (FRAGOs)
> Commander's Situational Reports (SITREPS)
> Fire Support Coordination Measures/Capabilities Overlays[22]

This became the basis for what General Schoomaker termed a "good enough" solution to be fielded to the entire Army beginning in 2004.[23] This solution's primary objective was to take the eleven systems of the ABCS suite and figure out how they could be and would be fully

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[21] Gregory Fontenot, COL (Ret), E.J. Degen, LTC, and David, Tohn, LTC, *On Point: The United States Army in Operation Iraqi Freedom*, (Fort Leavenworth, KS: Combat Studies Institute Press, 2004), 63.

[22] Barton, "Fixing the Stovepipe," 21-22.

[23] Ibid., 22.

integrated. This project of bridging the interoperability gap is still ongoing. However, it is important at this point to briefly describe each of the individual systems that comprise the ABCS suite.

The following 11 systems make up the ABCS suite:

Global Command and Control System-Army (GCCS-A)
Maneuver Control System (MCS)
All Source Analysis System (ASAS)
Advanced Field Artillery Tactical Data System (AFATDS)
Air and Missile Defense Workstation (AMDWS)
Battle Command Sustainment Support System (BCS3)
Force XXI Battle Command Brigade-and-Below (FBCB2)
Digital Typographic Support System (DTSS)
Command Post of the Future (CPOF)
Integrated Meteorological System (IMETS)
Tactical Airspace Integration System (TAIS)[24]

Additionally, two other systems are found within the ABCS suite, but are used for network management and communications architecture management. These systems: Information Dissemination Management – Tactical (IDM-T) and Integrated System Control (ISYSCON) enable much of the actual integration of the other systems but do not have specific Battle Command functions and will not be discussed further.[25]

GCCS-A provides the Commanders of Divisions and higher the necessary interface into the joint community. It was designed to "support monitoring, planning, and execution of joint, combined, and Army conventional military operations, as well as operations other than war for the Echelons Above Corps (EAC)."[26] This is a system designed to provide visibility of all theater assets to the Theater Commander as well as pass that information into the Joint Community; it does not have any additional, specific Battle Command functions.

MCS is the primary tool used by operational staffs to monitor current operations and plan future ones. By interpreting all information vertically and horizontally, MCS plays an important

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[24] TPIO-ABCS. "Leader's Reference Guide." A-2.

[25] TPIO-ABCS. "Leader's Reference Guide." A-2.

[26] Ibid., 2-3.

role in Battle Command. ASAS, developed by the intelligence community for use by staffs from battalion to Corps, receives and processes information from Intelligence, Surveillance, and Reconnaissance (ISR) assets and FBCB2 to disseminate a timely, accurate enemy situation. AFATDS provides the fires and effects staff the necessary information from higher and lower to plan, coordinate and control all indirect fires. It also incorporates information gleaned from FBCB2 reports and requests to match desired effects with available assets and capabilities. AMDWS, a contrivance of the air defense artillery community, also integrates information from a variety of sources to develop plans to counter and/or defeat the aerial threat. AFATDS, ASAS, and AMDWS to a lesser extent also play a role in Battle Command.[27]

At the tactical level FBCB2 provides linkage from the individual platform and/or soldier to the Brigade Commander. It facilitates the development of the common operational picture (COP) thru its ability to track friendly or blue platforms, transmit and receive messages, orders and graphics in real-time format. FBCB2 is the most common of the ABCS systems; it's wide distribution and ability to talk to the other systems makes it the most important individual system within the ABCS suite.[28] CPOF, a relatively new addition to ABCS enables rapid accurate decision making through the integration and portrayal of the COP primarily at the brigade and battalion level and above. Its ability to collaborate across the depth and breadth of the battle field enhancing situational understanding makes this system also critical to Battle Command.

Finally, the logistician's BCS3, which provides and disseminates logistical information from Battalion to Corps, and the engineer communities DTSS, used for terrain analysis provide critical aspects to the overall effectiveness and efficiency of ABCS. However, these systems do not have specific Battle Command functions and are not pertinent to this discussion. Likewise, IMETS,

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[27] TPIO-ABCS. "Leader's Reference Guide." 2-4 – 2-8 and 2-13 – 2-14.

[28] Ibid., 2-9 – 2-11.

used to provide weather analysis, and TAIS which assists in airspace planning and deconfliction will be excluded from the remainder of this discussion.[29]

In addition to these systems there is a handful more that are either in development or final testing prior to DoD acceptance. The three systems pertinent to this discussion are the Land Warrior Module, the Tacticomp handheld command and control system, and the Joint Battle Command - Platform (Dismounted) (JBC-P(D)). Land Warrior (LW) has been in development for some ten years and has seen about as many variations. Despite the high cost per individual system, there are many within the TRADOC community that believes that the LW system's merits outweigh its costs. That argument is beyond the scope here but is central to the reasons behind the constant shelving and unshelving of the LW project. The system itself is comprised of some half dozen individual pieces of equipment designed to provide the same SA to the soldier and leader on the ground that he would get when mounted. Essentially it is a C2 system that has self-contained power, a computer control system, a navigation module, a weapons interface module and an eye-piece viewer.[30] The system is integrated through the Vehicle Interface Kit (VIK) to transmit both voice and data over the Enhanced Position Location Radio System (EPLRS) network.[31] This system has proven to be very reliable and meets most of the C2 needs for the dismounted soldier and leader. Whether or not it belongs in the ABCS suite is a subject for other venues and discussions.

The Tacticomp 1.5 computer is a handheld device designed to provide position location information (PLI) as well as SA for other users. The Tacticomp also provides a basic set of preformatted messages to enhance C2. Additional functionalities of the system include: near real

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[29] Ibid., 2-9 – 2-11.

[30] *Tacticomp 1.5* Sierra Nevada Corporation, under "Command, Control, Communications, Computers and Networks," http://www.sncorp.com/prod/c4n/int4/tacticomp1.shtml (accessed Oct 18, 2007).

[31] "Land Warrior Integrated Modular Fighting System, USA," *Army Technology Online:* under "Industry Projects," http://www.army-technology.com/projects/land_warrior/ (accessed Oct 16, 2007).

time video exchange, still image display and emergency assistance capabilities.[32] The Tacticomp system has gone thru a myriad of testing and certification. Although it has not yet achieved wide acceptance within the entire Army, many of the units within the Special Forces community are currently using the system in operational environments. Unlike the LW System, the Tacticomp has limited interoperability to exchange information with and from the ABCS suite. 33 This is primarily because of the format of the messages themselves, which proponents of the system believe is a short-term problem.

Finally, the JBC-P(D) is essentially FBCB2 dismounted. Currently the FBCB2 program is absorbing several other PLI generating systems within the Army, Air Force and Marine Corps. Once the migration is complete, FBCB2 will be renamed JBC-P. This new hardware and software set will include many enhancements and improvements. One of the more important of these is a dismounted or dismountable version. The system will have at least two variants; one that can be undocked from a vehicle station, and another that will be totally wireless and self-supporting. Both of these variants will be able to run the future version of the FBCB2 software, the same software that will also run on all of the vehicle platforms. JBC-P(D) will also work over either of the communications backbones; EPLRS or Satellite.[34]

The technical aspects of these three systems provide the potential for them to be assimilated into ABCS. Furthermore, their ability to fill a much needed capability gap, Battle Command for the dismounted soldier and leader, helps ensure their continued development and growth. The ability to fill this gap and provide that soldier and leader on the ground the same SA that he

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[32] Ackerman, Robert K., "Army Intelligence Digitizes Situational Awareness" *Signal Magazine* (July 2005) http://www.afcea.org/signal/articles/anmviewer.asp?a=985&print=yes (accessed Oct 18, 2007).

[33] Sandra I. Erwin, "Outdated Army Training, Education Programs Get Revamped," *National Defense Magazine* (June 2005), http://www.nationaldefensemagazine.org/issues/2005/Jun/outdated_army.htm (accessed Oct 16, 2007).

[34] TRADOC Capability Manager (TCM) Platform Battle Command (PBC)/Combat Identification (CID), "Capability Development Document (CDD) (Draft version 16)." (Fort Knox, KY: Armor Center, 2007), 49.

would get while mounted is key. As will be discussed later, for too often soldiers have dismounted a platform, gone beyond radio range and have been unable to remain in contact with the platforms supporting them or that they are supporting. The likelihood of incidents of fratricide increasing is a result of this communication breakdown.

The aforementioned ABCS systems, and non-ABCS systems have a close relationship between the elements of Battle Command. One that must be investigated prior to discussions regarding the reduction of the number of incidents of fratricide. Recall the elements of Battle Command; understand, visualize, describe, direct, lead, and assess, and how they facilitate the commander's decision making process. The commander makes use of a variety of tools to provide him information as he manipulates the Battle Command elements. Some of these tools are force related, the Brigade's Reconnaissance, Surveillance, and Target Acquisition (RSTA) Squadron. Other tools are doctrinal, the Military Decision Making Process (MDMP) as described in Field Manual 5-0.[35] Still others are technological tools, which is where the ABCS fall. The ABCS helps the commander answer four critical questions:

> Where am I?
> Where are other friendly elements?
> Where are the enemy elements?
> What is the status and activity of each element?[36]

The answers to these questions enable the commander to make better decisions. ABCS assists the commander as he seeks these answers because it provides information in real time or near real time that is immediately disseminated across the depth and breadth of the battlefield.

Because the individual systems within the ABCS suite are found at all levels of command in virtually all types of units a COP can be attained. The fact that this COP enables commanders

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[35] US Department of the Army, *Field Manual 5-0, Army Planning and Orders Production* (Washington, DC: Department of the Army, 2005), 3-1.

[36] Huba Wass de Czege, BG(Ret) and Jacob Biever, MAJ, "Optimizing Future Battle Command Technologies." *Military Review* volume 78 (March/April 1998): 16.

and leaders at all levels to have a shared vision of the battlefield reduces the need for hands on C2 during operations. Instead, commanders are able to focus on the next decision, the allocation of resources and the way a particular operation is unfolding. He no longer has to constantly ask for updates from his subordinates over the radio, freeing them to use their initiative and exploit successes. The commander looking at the same COP as his subordinates is able to more effectively direct operations, lead his unit and quickly assess the effects being achieved. Shared understanding and a common visualization of the battlefield before, during and after a particular operation helps ensure that one of the most critical resources, time, is not wasted. Since the ABCS facilitate information sharing and automated C2, commanders are able to exploit their technological advantage over an enemy. ABCS reduces the amount of time previously necessary to gain a shared understanding and disseminate the commander's visualization, speeding decision making and keeping the enemy at a disadvantage.[37]

As the Army gets closer and closer to a fully integrated interoperable digital system of systems that provides quality information to commanders and their staffs, the elements of Battle Command will be greatly enhanced. This enables better C2 capabilities for agile and decisive force employment and utilization. The ease with which the individual systems and ABCS as a whole can acquire, disseminate and qualify information allows leaders at all levels to make better decisions faster.

Training Requirements for the ABCS Suite

One of the cornerstones of every Army unit is the need to plan and conduct realistic training in every aspect of a unit's mission with every asset that the unit has available. The modernization of the Army and its technology dependent baseline seen in ABCS reinforces this fact. ABCS training must become as important to every unit as physical training and individual weapons

[37] Fontenot, "On Point," 63.

training. The introduction of digital systems forces "leaders, commanders, battle staffs, and soldiers [to] leverage the art of battle command with the science of information technology to fully succeed in complex and ambiguous combat environments."[38] How this training should be conducted and the quality of that training will be the focus here.

The overall plan for the conduct of ABCS training is laid out in the Army Digital Training Strategy (ADTS). It provides the framework for how units are to conduct digital Battle Command training. It goes beyond the training conducted when a system is fielded to a unit initially and stresses the importance of "gaining digital battle command system expertise."[39] According to the ADTS, "units must train to develop and sustain both individual (operator, integrator, decision-maker) and collective (battle staff and unit) battle command skills."[40] It is necessary to therefore look at how the ADTS has laid out the process of training so that units can "achieve information dominance, the Army must find, gather, and report data (see first); transfer, disseminate, and manipulate the data in order to comprehend information (understand first); make decisions (act first); and take actions on these decisions (finish decisively).[41]

The ADTS describes four phases to achieve this information dominance and enhance digital Battle Command. Phase I is the establishment of basic systems skills. It includes the development and execution of the new equipment training (NET) and the development or reorganization of the necessary infrastructure to conduct NET. Phase II improves on these basic skills, as a variety of individual and collective training scenarios in all conditions are conducted. This phase is normally conducted by the tactical level leader and unit with a great deal of support

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[38] Combined Arms Center – Training (CAC-T). "Initial Capabilities Document (ICD) for Army Battle Command Information System Integration and Migration." Draft 2. (Fort Leavenworth, KS: Combined Arms Center, 2007), 13.

[39] TRADOC Collective Training Directorate (CTD), Combined Arms Center – Training (CAC-T), "The Army Digital Training Strategy (ADTS)" (Fort Leavenworth, KS: Combined Arms Center, 2004), 5.

[40] Ibid., 10.

[41] Ibid., 1.

from the TRADOC community. The third phase, also normally conducted by the tactical unit, concerns itself with the sustainment of the developing skill set. This phase reinforces the collective training begun in the previous phase and incorporates all aspects of the contemporary operational environment (COE) and includes a deal of self-development. The final phase, or Delta training focuses on the training of individuals and units as changes and upgrades are made to the digital systems. Ideally, these four phases are conducted over an 84 month period by the entire unit and are a focus for the TRADOC community.[42]

As this plan defines, much of Phase I is the preparation of the installation, infrastructure, and/or unit to receive the equipment. Conceptually the fielding of the equipment will be coordinated across all of the agencies involved; including the unit, TRADOC, and the contractors developing the equipment. Ideally, this unit set fielding (USF) will be very specific to that particular unit and its equipment. USF has five basic steps used to aid all interested parties through the process. Beginning with the specific installation and unit needs for infrastructure and training aids, to the development of the training packages, and the final development and testing of the equipment itself, step one is the longest of the five steps. The remaining four phases of USF begin with a unit reorganizing, the fielding of equipment and NET, the collective and sustainment training conducted by the unit as they move closer to the final step of validation.[43] Once validated, the unit continues the ADTS strategy with Phase II. This process works very well with units that are undergoing complete transformations; for example a light infantry brigade becoming mechanized. It has also worked very well for the Stryker Brigade Combat Teams (SBCT), as they have been formed from the ground up. Unfortunately, this process does not work as well for those units that are going through a transformation that doesn't involve major equipment or personnel changes. For example, the 1st Cavalry Division and 3rd Infantry Division

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[42] CTD, CAC-T, "The Army Digital Training Strategy," 1.

[43] Ibid., 7-8.

were unable to conduct full USF. Granted there were many other variables involved with both of these units including operational deployments and equipment being unavailable. [44] Whether a unit conducts USF or not doesn't change the fact that the program of instruction (POI) for NET is exactly the same.

The Army Acquisition Program delineates how a piece of new equipment will be fielded to a unit; and part of that fielding includes the NET. Generally, NET is conducted by the agency, proponent, or contracted developers as there is no existing expertise within the unit. In the case of most of the ABCS systems this is the responsibility of the Program Managers (PM) for that system. For example, PM-FBCB2 develops, designs, and executes the NET for units that are being fielded FBCB2 for the first time. As the system becomes more widely dispersed the requirement for NET diminishes. Additionally, all of the institutions within the Army education system from basic training to the Officer basic courses, now include periods of instruction on one of the applicable ABCS platforms.[45] The need for PM-FBCB2 contractors to conduct NET will be eliminated over time.

The basis for each individual systems training, or rather the stipulation of what functionalities are included in the NET program, comes from the TRADOC agency that writes the requirements for that system. These agencies, called either TRADOC Capability Managers (TCM) or TRADOC System Managers (TSM), have the responsibility to define the functionalities that must be taught to obtain a basic understanding of the system.[46] This is a key fact and one that is often forgotten. NET is not designed to or able to teach a particular user adequate knowledge to be an expert on that system.[47] It is the crawl phase of the Army's crawl-walk-run teaching and training

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[44] CTD, CAC-T, "The Army Digital Training Strategy," 10.

[45] Ibid., 18-19.

[46] Combined Arms Center, "Charter for TRADOC Capability Manager, Platform Battle Command and Combat Identification," 2006.

[47] Project Manager – Force XXI Battle Command Brigade and Below (PM-FBCB2), "FBCB2 v6.4.4.2 Program of Instruction (POI)." (Fort Monmouth, NJ: FM-FBCB2, 2006), 2

methodology. Again, using FBCB2 as an example, the TCM defines to the PM what functionalities or capabilities are necessary to obtain basic system knowledge. In this case, this includes everything from system start-up, to set-up, to basic messaging and system manipulation. While the instructor's focus is seemingly on ensuring the students know which buttons to push or what steps to take to send a message, operators and leaders who complete the NET course do obtain enough knowledge to adequately employ the system.[48] This should not and cannot be the end to the system training. The skill set taught in the NET will degrade quickly if additional training by the unit or individual is not conducted. Thus it is incumbent upon all leaders and commanders following NET to conduct additional training beyond that one individual system. Operators and leaders must continue to train to fully master the integration of their system into their unit's like systems, as well as the integration of their system into the ABCS suite.

Because each of the ABCS systems were designed differently for different capability gaps by different developers, the NET is different. Some systems require only 8-16 hours of NET, while others require 32-40 hours.[49] Obviously, based on the density of the systems within a unit this requirement can be perceived as being excessive and overwhelming. However, it is absolutely critical that all soldiers and especially leaders receive the NET instruction. During the initial introduction of many of the ABCS systems this time requirement for NET was met with a great deal of resistance from the units. Many were unwilling to have leaders, especially commanders, away from their primary jobs in order to receive the NET. For many of the systems, like ASAS or AFATADS, this was not a huge issue. Their density within a unit is not great and therefore the number of individuals required to execute the training is not great. However, for other systems, like FBCB2, MCS, and LW, because their basis of issue is nearly one per man or vehicle, the

[48] PM-FBCB2, "FBCB2 v6.4.4.2 POI." 5.

[49] CAC-T, "ICD for ABCS", Draft 2, 14.

NET requirement is great.[50] PMs and TCMs/TSMs had to coordinate months in advance for not only the fielding of the equipment but also so that the unit could properly allocate adequate time to enable all system operators to receive the NET.

During the early ABCS integration efforts, as the Army tested aspects of that integration it became apparent that NET had to be more closely monitored and coordinated across the PMs and TCMs/TSMs. The efforts at coordinating NET and fielding of all individual ABCS systems simultaneously greatly eased the burden of particular units faced with many competing demands. However, the monitoring and tracking of attendance at the NET classes had a greater impact on broadening a unit's level of knowledge. Attendance at the NET is now something that is tracked and reported by the unit's and PMs.[51] This helps ensure that not only is the training being conducted to the standard defined by the TCMs/TSMs, but that the correct operators and leaders are receiving the training. Units and PMs now must track attendance by soldier's name and report completion percentages to their higher headquarters.[52] Doing this has made collective and integrative training beyond the individual system become a combat multiplier rather than a distracter. Units are now able to use all of the capabilities and develop expertise on a particular system.

The importance of the correct individuals receiving NET on the ABCS systems cannot be overstated. While as noted, NET is not designed to develop expertise, it does provide that basic system knowledge. Following NET an operator can effectively, quickly and correctly employ his system ensuring that another node in the Battle Command network is emplaced.[53] It is through continued training and manipulation of the system during follow-on training exercises and events that the operator gains expertise on the system. The NET also forces the TCM/TSM agencies to

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[50] CTD, CAD-T, "The Army Digital Training Strategy," 32.

[51] TCM PBC/CID, "JBC-P CDD Draft v 16", 70.

[52] PM-FBCB2, "FBCB2 6.4 POI", 6.

[53] Ibid., 2.

ensure correct requirements are defined, that the PM is adequately teaching these requirements to standard, and that the unit receives the NET as a prime-time training event and incorporates that training into additional exercises.

As with all technologies, hardware improvements and/or software upgrades are made very quickly. Users discover techniques that work better, or have ideas for added capabilities of the system and developers discover better packaging designs or faster processors. This means that individual systems must be, and are upgraded on a regular basis. These upgrades dictate that additional training must be designed, developed, coordinated and conducted. In order to fully explain this it will be necessary to concentrate on one particular system.

When the 3ID units began the march to Baghdad in early 2003, the FBCB2 system originally designed to work exclusively over the EPLRS backbone had to be re-engineered to work over satellite communications architecture. The 3ID did not have sufficient quantities of EPLRS and no more were being built. So fielding a satellite version of the system, commonly referred to as Blue Force Tracker (BFT) was the only option.[54] The software set for BFT was much different than what is available today. It did not include much of the messaging capability that is currently on the system. This software was considered the 3.4 version. The 1AD units that replaced the 3ID months later were operating on version 3.5. Further upgrades, the integration of ABCS and technological improvements have resulted in the current version of FBCB2 (both BFT and EPLRS) to be designated 6.4.4.2.[55] The logic behind the numbering of versions aside, it is apparent that differences in software versions require additional training, or Delta training.

Some times the changes are few or subtle, for example the changes between FBCB2 v3.4 and v3.5, so the Delta training can be done in just a handful of hours. Other times, however, the changes are dramatic, for example the changes from FBCB2 v6.3 and v6.4.4.2 require some two

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[54] Fontenot, *On Point,* 63.

[55] TCM PBC/CID, "JBC-P CDD, Draft v16," 17..

days of training.[56] Delta training like NET, will not provide expertise; rather it will provide that basic knowledge that is different from the previous version of the software. The training assumes a level of master with the previous version. Similar to NET, the TCM/TSM defines the key capability changes that must be included in the POI, which is then executed by the system PM. Just like with NET there is a requirement on the part of the tactical unit to continue through Phases II (Improve Skills) and III (Sustain Skills). It is important to note that according to the ADTS, this Phase IV Delta training can "occur at any time in the process due to new hardware of software being fielded."[57] This means that in theory a unit could be just beginning its collective training or integration exercises and events and be told to execute Delta training because significant changes have been made to the system. Realistically this would not happen. If a directive like this were handed to the unit, it would more than likely be the result of drastic change to the unit's mission or deployment schedule.

The ADTS stipulation that Delta training could occur at any phase also accounts for those individuals that come out of the Army education system trained on a previous version. Ideally this should not happen either. However, the simple fact that the systems are expensive and the fielding of upgrades must be prioritized creates situations wherein the school houses are usually lower on the priority list than the deploying units. Delta training must also be recorded,

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[56] FBCB2 version 3.4 was purely a blue force tracking device that provided PLI for friendly vehicles as well as a handful of basic messages – SPOT Report, Call for Fire, Call for MEDEVAC, SITREP and Free-text. The upgrades to version 3.5 enabled the system to transmit messages over the satellite architecture rather than the EPLRS network, as well as adding some additional C2 messages – NBC 1, Obstacle Report and SALT Report to name a few. The upgrades from v3.5 to v6.3 brought FBCB2 into the ABCS directed Joint Variable Message Format (JVMF) as well as encompassing Military Standard (MILSTAN) 2525b graphic symbols. There were significant changes made to the system both hardware and software upon transitioning to v6.3. Likewise the transition to the current version 6.4.4.2, the changes to the system have been dramatic. Continued expansion of the 80+ C2 messages, upgrades to the processors, and operating system highlight the changes found in v6.4.4.2. For the most part, units were either on v3.5 or v6.4.4.2. The 6.3 version was not widely fielded, in order to take advantage of the vast improvements found in v6.4.4.2. Today there are very few units that are not on v6.4.4.2. However, the FBCB2 community is preparing to begin transitioning to the JBC-P product line, which will obviously involve additional Delta Training.

[57] CTD, CAD-T, "The Army Digital Training Strategy," 2.

monitored and tracked by both the PM's and units executing the training. This is important when taking account of those individuals new to a particular unit.

In order to help ease the burden on the individual systems PMs, the Army has established several Battle Command Training Centers (BCTCs) at key installations. This has increased the pool of certified instructors available to conduct the Delta training.[58] It also makes the receipt of that training much easier for the units. They are able to coordinate directly with their respective BCTC staff for seats in the regularly scheduled classes, as well as schedule specific dates for greater numbers of individuals on particular systems. The ADTS also envisions the Delta training being conducted at the Combined Training Centers (CTC) and within the major theaters of operation. Currently there are permanent facilities in Kuwait and Korea to conduct Delta training on all of the ABCS systems. This is necessary to ensure that the units have the ability to train with the changes and upgrades regardless of its status.[59] Regardless of the unit's structure, mission, place in the reset model or operational tempo (OPTEMPO), the conduction and receipt of the Delta training is just as important as the NET. Soldiers demand that realistic training is conducted on all other equipment; ABCS is no different.

Two additional training considerations have been addressed by key agencies in the digital development and training community. The first is a requirement for the system developers to include embedded training within the software and hardware of the system itself. This also helps the unit and operators as they progress through Phases II and III.[60] Embedded training provides operators with the opportunity to reinforce that training received during the NET and increase their mastery of the system. The second consideration is maintenance training on each of the individual systems. Initially, this class is established by the PM as a train-the-trainer class. Key individuals, usually those within the Signal units, are trained to conduct basic unit level

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[58] TCM PBC/CID, "JBC-P CDD", 70-71.

[59] CTD, CAC-T, "The Army Digital Training Strategy," 2.

[60] CAC-T, "ICD for ABCS", Draft 2, 4 and 18

maintenance on the system.[61] As ABCS becomes more and more common having certified system maintenance personnel within each unit makes maintaining the systems much easier. As with other equipment in the inventory, there is some basic operator level maintenance that is taught during NET and can be conducted by the operators. However the complexity of the system prevents this operator level maintenance from being very detailed. Having that additional layer of certified maintenance personnel helps units ensure that their systems remain operational. For smaller units at some of the smaller installations this is critical. Typically, the system PMs cannot afford to keep contractors with every unit or system to provide additional maintenance support. The unit level maintenance personnel in these units or at these installations have to be somewhat more self-sufficient. They are still supported by the system PMs and contractors, but that support usually means that systems have to be shipped somewhere else for additional maintenance.[62]

Chapter 4 Fratricide Defined

Throughout the history of this country, her citizens have dealt with the loss of American servicemen and women to combat. It is an unfortunate potentiality of serving one's country. While a soldier being killed by the enemy in combat is horrific, a soldier killed by friendly fire can be debilitating to all involved. Fratricide is a problem that has existed for millennia; since Cain killed his brother Abel as written in Genesis. As weapons have become more and more advanced, the incidents of fratricide have become more deadly and their likelihood has increased. There are volumes written on the subject of fratricide its prevention. This discussion will simply seek to provide a working definition, the classification of the different types of fratricide, how ABCS relates to incidents of fratricide and if those incidents relate to training levels.

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[61] CTD, CAC-T, "The Army Digital Training Strategy," 10.

[62] TCM PBC/CID, "JBC-P CDD, Draft v16," 73.

Defining fratricide is trouble-some. The definition found in Merriam Webster's New Collegiate Dictionary, "the act of killing a sibling or countryman" seems too broad.[63] On the other hand, the TRADOC definition, "the employment of friendly weapons and munitions with the intent to kill the enemy or his equipment or facilities, which results in the unforeseen and unintentional death or injury to friendly personnel" seems to be too narrow.[64] The dictionary definition if applied literally would have to include deaths as a result of criminal activity, for example, murder and home invasions. The context of using the word under this definition would cause a listener or reader to naturally exclude these kinds of acts, yet the definition itself is simply too inclusive. Conversely, the narrow TRADOC definition excludes incidents and acts that some term as accidents. For example, during the Vietnam War an F-4 dropped napalm on a church killing 13 civilians. The investigation following the incident determined that the aircraft had a faulty bomb rack and deemed the bombing an accident.[65] Applying TRADOC's definition to this incident would exclude these 13 deaths from the statistical totals.

From this it is easy to see how the Army has settled on the definition found in Field Manual 1-02 (FM 1-02), *Operational Terms and Graphics*, as "the unintentional killing or wounding of friendly personnel by friendly firepower."[66] While this definition would appear to also be too generic or broad, it actually does a much better job of including those incidents that are commonly referred to accidents and those incidents that are commonly referred to as near-fratricide. This definition accounts for those incidents where a soldier or unit is shot at by another friendly soldier or unit but no casualties exist. The FM 1-02 definition would also include the deaths of the civilians in the previous example.

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[63] Merriam-Webster, *New Collegiate Dictionary, 15th ed.*, s.v. "Fratricide."

[64] Canada National Defence Department, The Army Lessons Learned Centre, "Fratricide," *Dispatches: Lessons Learned for Soldiers* volume 11 (October 2005): 5.

[65] Dispatches, "Fratricide," 5.

[66] US Department of the Army, Field Manual 1-02, *Operational Terms and Graphics*. (Washington, DC: Department of the Army, 2004), 1-86.

The confusion over the definition is one of the contributing factors to the problem associated with collecting the statistics or numbers of incidents of fratricide. There is a stigma attached to fratricide that permeates every level of the Army. Part of this is due to the long-term effects that one incident can have on both the soldiers involved and the unit itself. Besides the loss of life, soldiers and leaders can become hesitant, lose their initiative and aggressiveness and become distrustful of their leadership. Coupled with this is the ever present media coverage and the potential political impact one incident of fratricide can have. This is best seen in the death of Army Ranger Specialist Pat Tillman. The circumstances surrounding his death at the hands of friendly fire and the resulting fallout from the incident reached all the way to the Pentagon in Washington, DC.[67] Additionally, often times soldiers who are wounded or killed are evaluated by medical professionals who are miles away from the incident itself and the others involved.

According to Kenneth Steinweg in his article, "Dealing Realistically with Fratricide" there are six factors that make analysis of the incidents difficult. First and foremost, the historical records are often hard to find. Many Vietnam era incidents are classified as simply "Killed in Action" or "Result of Hostile Fire." Secondly, as mentioned above, the reporting of the incident is sometimes met with prejudice; that the events are so rare that the validity of the report is questioned. The third factor deals with Clausewitz's fog of war, in that the confusion surrounding an event precludes any true knowledge about what really happened.[68]

The fourth factor gets back to the medical professionals. This does not mean that they are to blame or are covering up incidents but rather they are more focused on treating the bullet wounds or extracting the shrapnel to worry about how a particular injury occurred. The fifth factor deals with the source of the information. While personal first-hand accounts may be the best source of

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[67] There are a number of sources for additional information regarding the details of SPC Tillman's death, including: Mike Fish, "A Case of Fratricide: Who Killed Pat Tillman?" ABC News online (July 2006), http://i.abcnews.com/Sports/story?id=2212545&page=1 (accessed 18 Jan 2008).

[68] Kenneth K. Steinweg, "Dealing Realistically With Fratricide," *Parameters* volume XXV (Spring 1995): 7.

data, they tell only one story that in concert with the confusion of the situation, may unintentionally distort the facts. Finally, the sixth factor that makes statistical analysis difficult deals with examining "battles and campaigns, rather than well-known worst-case scenarios."[69] The worst-case scenarios don't normally point to pervasive problems that lead to incidents of fratricide. While these six factors do present problems for data collection and investigation, it is possible to do some analysis of fratricide incidents and classify them into different categories of fratricide.

According to the TRADOC office for Combat Identification, TRADOC Capability Manager for Platform Battle Command and Combat Identification (TCM PBC/CID), four mission areas are defined: Air-to-Ground (A-G), Ground-to-Ground (G-G), Ground-to-Air (G-A), and Air-to-Air (A-A). The first two mission areas, A-G and G-G, have associated domains. For G-G they are: platform to platform, platform to soldier, soldier to platform, and soldier to soldier. For A-G the domains are: rotary wing/fixed wing to soldier, and rotary wing/fixed wing to platform. There are no domains for G-A or A-A, they are considered stand alone by the Army Concept and Capabilities Developments Plan (AC2DP).[70] The platform to platform domain includes both stabilized platforms like the M1A2 Abrams Tank and the M2A2 Bradley Fighting Vehicle, and non-stabilized platforms like the M1114 HMMWV, Special Forces non-standard vehicles and US Security Company vehicles. The term soldier in these domains includes all US military personnel dismounted from a vehicle, regardless of service affiliation.[71] Classifying fratricide incidents in this manner ensures that the analysis is conducted using the same guidelines. This also helps identify trends so that the acquisition community is working with developers to fill a true

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[69] Ibid., 8.

[70] US Army Training and Doctrine Command (TRADOC), *2007 Army Concept and Capability Development Plan (AC2DP) version 2.0* (Washington DC: Department of the Army, August 2006), 76.

[71] Matt Harney, email message with brief to author, January 2008.

requirements gap. The following charts illustrate this point as they have been carefully broken into specific categories to compare two different specific time periods.

Figure 1 compares fratricide incidents during Operation Desert Storm (ODS) and those that occurred during the first 13 months of Operation Iraqi Freedom (OIF); OIF I and II. It is important to note the environments of these two operations as well. The data from ODS includes some 100 hours of operations in open desert terrain with large massed Armor and Mechanized Infantry formations and A-G engagements. The platforms involved had no Battle Command or SA developing digital systems. The soldiers were operating technologically superior vehicles but still relying on radios and maps for Command and Control (C2). By contrast, OIF I incidents include over 30 days of major combat operations, and 11 months of stability operations. Initially, these operations were conducted in both open desert terrain and urban terrain. However, as major combat operations ended and stability operations began, the terrain became predominantly urban. The platforms operating in OIF I had limited numbers of digital Battle Command systems and limited amounts of Combat Identification (CID) systems and were a mix of heavy and light, track and wheel vehicles. Generally, the number of Battle Command systems for a typical maneuver company was between 2-5 systems for the company leadership.[72] Similarly, most of the elements within maneuver elements were outfitted with Combat Identification systems, while very few of the sustainment assets were.

[72] Fontenot, *On Point*, 395.

Ind./Platform	vs.	Ind./Platform	ODS	OIF
Platform	↔	Platform	55%	15%
Platform	↔	Soldier	0	25%
Soldier	↔	Soldier	10%	25%
Indirect Fire	→	Platform/Soldier	5%	5%
Obstacles	→	Platform/Soldier	0	0
Air R/W	→	Platform/Soldier	5%	15%
Air F/W	→	Platform/Soldier	25%	15%

Figure 1: Comparison of ODS and OIF Fratricide [73]

The chart clearly shows that incidents of fratricide have shifted from being predominantly platform to platform to those incidents involving the dismounted soldier. The reasons for this shift can be attributed to several factors, the most important of which is the increase in the number of platforms that have digital C2 and SA systems.[74] The chart also points out another trend from OIF; an increase in platform to soldier incidents of fratricide. Some of this increase has to do with the fact that OIF has seen many more missions and tasks being conducted by dismounted soldiers, either supported by or in concert with the platforms. When gunners on these platforms are looking through their sights, it is very difficult to distinguish characteristics from a person's heat signature. Without some SA and C2 it is practically impossible to distinguish this signature as friend or foe. This is not intended to be an excuse to deflect blame, rather to illustrate how important it is to have clear SA provided by some kind of digital Battle Command

[73] Matt Harney, email message with brief to author, January 2008.

[74] Clearly there are other factors involved with the decrease of incidents of platform-on-platform fratricide, including, but not limited to: Combat Identification panels, increased familiarity with the platforms themselves, more opportunity to conduct collective training levels on the part of the units, and less mass armor/infantry formations. These factors have not contributed nearly as much as has digital Battle Command systems providing greater situational awareness and command and control. See: James Conaster and Thane St. Clair, "Blue Force Tracker – Combat Proven." *Armor*, (2003) 20-23; Lacey, "Takedown," 290; Fontenot, "On Point," 394-395 and 416-418; Barton, "Fixing the Stovepipe," 45-47.

system. Comparing the increase of fratricide incidents involving platform-to-soldier and soldier-to-soldier to the decrease in incidents involving platform-to-platform it becomes apparent that having digital Battle Command systems providing all operators access to the same COP and improving their SA has played a leading role in the improvement of fratricide prevention. This is especially true when taking into account the fact that most every other factor is exactly the same. The Tanks and Bradleys used in ODS, from a firepower and fire control standpoint, are exactly the same as the Tanks and Bradleys used in OIF. There were improvements made to both platforms in the years between ODS and OIF; however, the primary weapon's sights, the main gun, the commander's auxiliary sight and gun control handles (for example) were the same. Most, if not all, of the improvements were to the drive train, engine components or internal fit, form and function changes.[75] The Army recognized this trend as well when General Schoomaker directed the good enough fielding plan in an attempt to get as many of the digital Battle Command systems into the hands of as many soldiers as quickly as possible.[76]

Therefore the density of Battle Command systems on Tanks, Bradleys and Helicopters has decreased the likelihood of fratricide between these platforms or air frames. However, one of the most critical areas, the dismounted soldier, has not seen the same kind of decrease. In fact quite the opposite has occurred, as incidents of fratricide involving soldier-to-soldier and soldier-to or from-platform are now more likely than other types of incidents. Figure 2 shows this dramatic increase in incidents of fratricide. A cynical reader will point to the vastly different mission sets, the greater number of Reserve and National Guard units, the non-contiguous battle space and the requirement for more boots on the ground in Stability Operations as reasons for this increase. However, as can be seen this increase is primarily because there are two areas that have achieved

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[75] Fontenot, *On Point,* 14-15 and 21-22.

[76] Barton, "Fixing the Stovepipe," 22.

only minimal success in obtaining and fielding an interoperable digital Battle Command system; the soldier and the light vehicles.

Individual/Platform	vs.	Individual/Platform	OIF %
Stabilized Platform	⟷	Stabilized Platform	0.0%
Stabilized Platform	→	Soldier/Marine	1.5%
Stabilized Platform	→	Light Vehicle	2.6%
Light Vehicle	→	Soldier/Marine	6.6%
Light Vehicle	→	Stabilized Platform	9.6%
Light Vehicle	⟷	Light Vehicle	40.8%
Light Vehicle	→	Friendly Civ. Vehicle	4.8%
Soldier/Marine	⟷	Soldier/Marine	3.3%
Soldier/Marine	→	Stabilized Platform	1.5%
Soldier/Marine	→	Light Vehicle	7.0%
Rotary Wing	→	Soldier/Marine	1.1%
Fixed Wing	→	Stabilized Platform	0.7%

Figure 2: Fratricide Percentages, OIF Stability Operations (As of Oct 2007) [77]

One of the most important aspects of this lack of suitable systems is the fact that unlike a platform a soldier has a very finite amount of weight that he can carry. It is common knowledge that the more one carries, regardless of how it is configured, the less speed one is able to move with and the less endurance one has. The LW System in its current configuration is the closest to being a suitable solution for the dismounted soldier. However, the system's handful of negative factors has impacted its availability to all units and soldiers.[78] Details of these factors, many of which are classified, include cost and certification testing are beyond the scope of this paper.

The individual systems of the ABCS suite are not cheap and must meet several bureaucratic milestones before they can be fielded to the Army. Yet these two charts illustrate two key points. First they show that a significant decrease in platform-to-platform incidents of fratricide has occurred. This decrease directly correlates to the presence of the Battle Command systems. Secondly, there are still areas where ABCS must be expanded to account for reduction of all

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[77] Matt Harney, email message with brief to author, January 2008.

[78] Schachtman, Noah, "The Army's New Land Warrior Gear: Why Soldiers Don't Like It," *Popular Mechanics* (May 2007), http://www.popularmechanics.com/technology/military_law/4215715.html (accessed Nov 9, 2007).

fratricide incidents. Unfortunately, the fielding of systems is only half the problem. Figure 2 also shows that despite the presence of Battle Command systems on platforms incidents of platform-to-platform fratricide still occur. What then can be attributed to these incidents still occurring?

Analysis of the specific fratricide incidents from OIF clearly points out that the training on the systems is a contributing factor, if not the most important factor. The specific incidents cannot be discussed in this open forum, as they are for official use only. However, investigative sources within Multi-National Force – Iraq (MNF-I) and Central Command (CENTCOM) Headquarters have clearly pointed out that many of the fratricide incidents have been a direct result of a lack of training or lack of knowledge on the resident ABCS system. Investigation results consistently point to a lack of SA on the part of either the shooter or the victim or both in most of the fratricide incidents from OIF.[79] The investigations have shown that soldiers were either not using their assigned Battle Command systems or were incorrectly employing them. This lack of use or incorrect use directly corresponds to the fact that the operators were not trained on the specific system. Had they been trained to standard on the system and been cognizant of the SA that system was providing, one could argue that the fratricide would not have occurred.

Chapter 5: Recommendations and Evaluation

The analysis of the fratricide incidents recorded since the beginning of OIF clearly show that a lack of SA and C2 was a contributing factor. Logically then, since the ABCS suite is the Army's tool for providing that SA and C2, soldiers involved in fratricide incidents were not well versed in the proper employment of the individual systems. This can be attributed to any of three

[79] The source for this information is MNF-I Combined Information Data Network Exchange, and the CENTCOM database. Both are closed, closely monitored databases that compile results from the Army Regulation 15-6 investigations that occur following each and every incident of fratricide. The database can only be accessed through Secret Internet Protocol (SIPR) addresses.

things. The first explanation is general apathetic attitudes towards the systems or their benefits, which can only truly be addressed by the chain of command. Secondly, there is sometimes a lack of standard operating procedures addressing the use of the ABCS systems. This must also be dealt with by the chain of command. The final factor deals with the training of operators on the individual systems themselves. While this also takes some influence on the part of the chain of command, it is also something that must be addressed Army wide.

Units are beginning to track the individuals who attend NET. However, the collective training and sustainment training which are equally as critical are not being tracked and reported. The ABCS suite must be treated as a weapon system in that the proper application of the systems is a combat multiplier. Furthermore, a lack of training which translates to a lack of confidence or knowledge of a system, directly corresponds to jeopardizing soldiers lives. It is too cavalier to say that a lack of adequate training on ABCS is the *only* factor contributing to fratricide. However, as the previous discussion pointed out, it is possible to reduce the likelihood of fratricide incidents occurring by ensuing that all soldier sand leaders are adequately trained on the appropriate ABCS system.

Therefore, it is imperative that all soldiers receive NET on any of the ABCS platforms that he will be employing. For example, combat arms soldiers working in tactical unit assignments must receive FBCB2 NET, military intelligence soldiers must receive ASAS NET, and field artillery soldiers must receive AFATADS NET. Additionally soldiers should also go through the NET for any other systems that they are likely to be expected to employ. For example, these same combat arms soldiers must also go through MCS NET as they could very likely be assigned to staff positions with the battalion or brigade headquarters. Every soldier must be trained on one or more of the individual systems within the ABCS suite, just as they are trained on one or more personal weapons.

Of even greater importance however is the follow on collective and sustainment training that must be conducted. Greater efforts must be made on the part of unit commanders to ensure

that the appropriate guidelines and policies described in official publications relevant to the ABCS suite are captured in SOPs. Then it becomes the responsibility of all involved to ensure that soldiers and leaders operating the ABCS platforms are adequately trained. To assist commanders in ensuring that this collective training is conducted, the Army must adopt a policy stipulating mandatory semi-annual ABCS certification. This certification must be conducted like the Delta training final testing. Soldiers are given a written test that requires the execution of a set of tasks. This test evaluates the operator's knowledge of the system itself as well as his ability to properly employ the system. Once an operator has successfully renewed his qualification, the unit itself is then able to successfully incorporate all of the ABCS functionalities into the unit's training plan. ABCS continues to be an asset to the unit, providing real time SA, enhancing the elements of Battle Command, and enabling leaders to make better decisions faster.

It is important to evaluate this recommendation. In this case, the evaluation will use a modified version of the course of action (COA) criteria as extracted from Field Manual 5-0, *Army Planning and Orders Production*; feasibility, acceptability, suitability and completeness.[80] The fifth criterion of distinguishable is being excluded as only one course of action for ABCS training is being proposed. The four remaining criteria provide a working framework that is familiar to the joint community so that future comparative research on these subjects can be done.

The first criteria, feasibility deals with a unit being able to "accomplish the mission within the available time, space and resources."[81] The proposed recommendation meets the definition of this criterion in that greater command influence on the training helps to ensure that the proper operators are receiving the NET and conducting the sustainment training. This prevents resources from being wasted and time from being lost as a result of untrained ABCS platform operators.

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[80] US Department of the Army, Field Manual 5-0, *Army Planning and Orders Production,* (Washington DC: Department of the Army, 2005), 3-29 – 3-30.

[81] Ibid., 3-29.

The second criterion of acceptability is often a judgment call as it is concerned with justifying the advantage gained by executing a particular COA against the cost of the resources.[82] The fact that it has been shown that training on the ABCS suite provides greater C2 and SA thereby reducing the potential for fratricide incidents clearly makes this recommendation acceptable. The advantage gained through more concerted training efforts is seamless integration of digital Battle Command tools horizontally and vertically across the depth and breadth of the battle space. The resource cost for executing this training is time. While it is precious and impossible to control, loss of time is nothing compared to the loss of a soldiers life due to fratricide. That is the potentiality that is increased dramatically when ABCS training is not conducted or when the correct individuals are not trained.

The criterion of suitability forces a COA or recommendation to accomplish a mission while complying with a commander's guidance.[83] Fratricide prevention is the goal of every service member; it does not need to be spelled out in regulatory or policy documents. However, the acceptance of a tool designed to help the service member prevent fratricide is not as common. It takes time and experience to gain confidence with that tool, to realize its full potential and for it to become a force multiplier. That confidence can only be achieved through training with that tool. Required ABCS training is suitable as it is proven to reduce fratricide incidents.

The final evaluation criteria of completeness can't be used at this time, as the recommendation posed has not been fully implemented. Again, referencing FM 5-0, completeness deals with the accomplishment of a mission.[84] This recommendation has the potential to accomplish the mission, which is greatly reducing the incidents of fratricide through increased levels of ABCS training. Completeness as an evaluation criteria will have to be included in future studies of this nature. Regardless, using the other COA criteria as a tool for

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[82] Ibid., 3-29.

[83] Department of the Army, FM 5-0, 3-29.

[84] Ibid., 3-30.

evaluating this recommendation illustrates the validity of the recommendation itself. Training of all types on the ABCS suite must be made mandatory across the entire Army, in order to ensure greater understanding of the systems, increasing Battle Command, SA and a COP across the battle space, and thereby, reducing the likelihood for fratricide incidents to occur.

Conclusion

The elements of Battle Command; understand, visualize, describe, direct, lead and assess, provide the critical information necessary for leaders at all levels to be more effective. These elements have been shown to be the connective tissue that provides the situational awareness for all leaders. This SA is absolutely critical for leaders and commanders to make timely accurate decisions on the modern battlefield. A commander and his staff use thee elements of Battle Command to gain and maintain SA, but it is the dissemination or communication of that SA that makes the ABCS suite so important and powerful.

As mentioned, the individual systems within the ABCS suite each paint a piece of the COP that is shared across the depth and breadth of the battlefield. Each and every leader at each and every level of command has the ability to see and understand the same information. Ultimately, this understanding will be expanded to include the vast majority of the individuals and platforms in the Army; including the dismounted soldier. Again, this speeds not only decision making but also speeds dissemination of the direction and speeds the execution of the tasks. ABCS provides greater understanding, clearer visualization, succinct description, concise direction, more effective leadership, and more accurate assessment. However, the complexity of these systems demands that leaders and operators be adequately trained on them.

An untrained leader or operator will not understand what he is seeing on the system; nor will he be able to direct the execution of assigned tasks which impacts accurate assessment. This creates situations where the leader, through acts of omission rather than commission, needlessly exposes himself and subordinates to the dangers on the battlefield. The greatest of these dangers is an untrained leader or operator attempting to use a system and creating situations wherein fratricide becomes more possible. The impacts of these fratricide incidents on the unit and Army, at large, are well documented. This further highlights the need for both greater enforcement on

the part of the entire Army community of the training requirements and standards for the ABCS suite, as well as more focused investigation in the incidents of fratricide.

The debilitating effects of fratricide demand that the reporting of these incidents must be addressed. The stigma associated with fratricide must be removed; freeing leaders and commanders to clearly state the reasons behind each and every incident. Furthermore, when an incident of fratricide is reported, the resulting investigation must be conducted so that true lessons can be learned. It must not and cannot be some sort of witch hunt seeking to only cast blame. The investigation must clearly point out the reasons. For example, rather than stating that a particular individual involved in a fratricide did not have situational awareness, the investigating officer must seek to, and be expected to determine why this individual didn't have SA. Was it because he didn't know how to use a particular ABCS system? Or because he didn't have that system in operation? If so, why not? These are the kinds of questions that must be answered when investigating fratricide incidents. This is not to say that questions are not being asked and adequately answered. Rather, the assertion here is that there is not enough detail associated with these answers or reasons behind the incident.

There should be a great deal of additional research done in this area. It must be done with greater depth and more resources than have been done here. Yet, perhaps more importantly the additional research needs to be declassified. Only through the use of all available data can research truly determine the strength of the connection between ABCS training levels and fratricide. Keeping the data classified prevents both in depth analysis as well as full disclosure of the results of the analysis. However, the most important impact is the fact that the classification prevents the lessons learned from the investigation from being widely disseminated across the entire Army. It can be done without exposing the innocent or vilifying the guilty; names and identities can be protected while still allowing the pertinent details to be included in education and training. Failure to do this only perpetuates a problem that advanced technology alone cannot solve and needlessly exposes the Army's greatest asset – soldiers – to greater risk.

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